

Docket No.: 614.1963D

Serial No. 10/615,978

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 12, 13, and 14 in accordance with the following:

1. (CANCELED)

2. (CANCELED)

3. (CANCELED)

4. (ORIGINAL) An optical transmission system comprising a transmitting-end optical transmission device, a receiving-end optical transmission device and an optical transmission line connecting the transmitting-end and receiving-end optical transmission devices,

the transmitting-end optical transmission device comprising:

encoding means having k input and n output, for generating $(n-k)$ error correction bits for transmission data on k channels and adding the $(n-k)$ error correction bits to the transmission data so as to form a sequence of n data;

multiplexing and frame generating means connected to the encoding means, for adding a frame synchronization information to each data in the sequence of the n data and time-division-multiplexing the n data; and

electrical-optical converting means connected to the multiplexing and frame generating means, for converting the time-division-multiplexed n data into n optical signals so as to deliver the n optical signals to the optical transmission line, and

the receiving-end optical transmission device comprising:

optical-electrical converting means for converting the n optical signals via the optical transmission line to electrical signals;

separating means connected to the optical-electrical converting means, for separating the electrical signals into a sequence of n data by detecting the frame synchronization information; and

Docket No.: 614.1963D

Serial No. 10/615,978

decoding means connected to the separating means, for performing error correction decoding for a sequence of k data from said separated sequence of the n data using a sequence of $(n-k)$ data from said separated sequence of the n data.

5. (CANCELLED)

6. (CANCELLED)

7. (ORIGINAL) An optical transmission device comprising:

frame generating and SOH inserting means for adding an SOH (Section Over Head) to data for each of k channels such that all the k data can be aligned in phase by means of a frame synchronization byte within each SOH;

encoding means having n outputs and connected to the frame generating and SOH inserting means, for receiving the k data with the SOH, generating $(n-k)$ error correction bits for the k data without taking the frame synchronization bytes into account, adding a frame synchronization byte to each of the $(n-k)$ error correction bits and forming n data, each of the n data including its frame synchronization byte, by combining the $(n-k)$ error correction bits and the k data corresponding to the k channels;

electrical-optical means for converting the n data from the encoding means into n optical signals having different wavelengths; and

wavelength-multiplexing means connected to the electrical-optical converting means, for multiplexing the n optical signals from the electrical-optical converting means so as to form wavelength-multiplexed signals.

8. (ORIGINAL) An optical transmission device comprising:

wavelength-demultiplexing means for separating wavelength-multiplexed optical signals having n wavelengths into n optical signals corresponding to the n wavelengths;

optical-electrical converting means connected to the wavelength-demultiplexing means, for receiving and converting the separated n optical signals corresponding to the n wavelengths into n electrical signals;

frame top detecting means for detecting a top of a frame for each of the n electrical signals converted by the optical-electrical converting means;

memory means for storing the n electrical signals converted by the optical-electrical converting means and outputting the stored n electrical signals such that the tops of the frames

Docket No.: 614.1963D

Serial No. 10/615,978

detected by the frame top detecting means are aligned with each other;

decoding means for performing an error correction decoding for k data contained in the n electrical signals converted by the optical-electrical converting means using (n-k) error correction bits contained in said n electrical signals; and

SOH (Section Over Head) terminating means for receiving the k data from the decoding means and terminating an SOH for said every k data.

9. (CANCELED)

10. (CANCELED)

11. (CANCELED)

12. (CURRENTLY AMENDED) An optical transmission device, comprising:

wavelength-demultiplexing means for separating wavelength-multiplexed optical signals conveying n bits into a first optical signal having a first wavelength conveying k bits representing transmission data and a second optical signal having a second wavelength, different from the first wavelength, conveying (n-k) bits representing error correction bits;

optical-electrical converting means for converting the n-optical signals having the respective, different wavelengths to n-electrical signals including said k bits representing transmission data;

decoding means receiving the n-electrical signals from the optical-electrical converting means, for performing error correction decoding for every said k bits using said (n-k) bits representing error correction bits.

13. (CURRENTLY AMENDED) An optical transmission device that multiplexes n channels, wherein (n-k) channels are not used for data transmission in the optical transmission device, comprising:

encoding means having k input and n output, for generating (n-k) error correction bits for transmission data on k channels and adding the (n-k) error correction bits to the transmission data so as to form a sequence of n data;

multiplexing and frame generating means connected to the encoding means, for adding a frame synchronization information to each data in the sequence of the n data and time-division-multiplexing the n data; and

Docket No.: 614.1963D

Serial No. 10/615,978

electrical-optical converting means connected to the multiplexing and frame generating means, for converting the time-division-multiplexed n data into n optical signals so as to deliver the n optical signals to an optical transmission line.

14. (CURRENTLY AMENDED) An optical transmission device that separates n channels, wherein $(n-k)$ channels are not used for data transmission in the optical transmission device, comprising:

optical-electrical converting means for converting time-division-multiplexed signals to electrical signals;

separating means connected to the optical-electrical converting means, for separating the electrical signals into a sequence of n data including k bits representing transmission data and $(n-k)$ bits representing error correction bits by detecting a frame synchronization information; and

decoding means connected to the separating means, for performing error correction decoding for every said k bits using said $(n-k)$ error correction bits.

15. (CURRENTLY AMENDED) An optical transmission device having n channels, comprising:

encoding means for generating error correction bits for m data corresponding to any m channels of k channels representing transmission data, k being less than n and a number of the error correction bits being $(n-k)$;

identification signal inserting means connected to the encoding means, for inserting an identification signal into each of the m data and the $(n-k)$ error correction bits from the encoding means;

multiplexing means connected to the identification signal inserting means, for time-division-multiplexing $(k-m)$ data rather than said m data in the transmission data, and, said m data as well as said $(n-k)$ error correction bits; and

electrical-optical converting means for receiving from the multiplexing means and converting the time-division-multiplexed signals to optical signals.

16. (CURRENTLY AMENDED) An optical transmission device having n channels, comprising:

optical-electrical converting means for converting time-division-multiplexed signals including k data representing transmission data for k channels in the n channels and $(n-k)$ error

Docket No.: 614.1963D

Serial No. 10/615,978

correction bits to n electrical signals;

separating means for separating the n electrical signals receiving from the optical-electrical converting means into a sequence of n data;

identification signal detecting means for detecting m data and the $(n-k)$ error correction bits in the sequence of the n data received from the separating means, each of the m data and the $(n-k)$ error correction bits having an identification signal; and

decoding means receiving the k data and the $(n-k)$ error correction bits from the identification signal detecting means, for performing error correction decoding on the m data using the $(n-k)$ error correction bits.

17. (CURRENTLY AMENDED) An optical transmission device having n channels, comprising:

encoding means receiving m data corresponding to any m channels of k channels representing transmission data and $(k-m)$ fixed data, for generating $(n-k)$ error correction, k being less than n ;

identification signal inserting means connected to the encoding means, for inserting an identification signal into each of the m data and the $(n-k)$ error correction bits;

multiplexing means connected to the identification signal inserting means, for time-division-multiplexing $(k-m)$ data rather than said m data in the transmission data, and, said m data as well as said $(n-k)$ error correction bits; and

electrical-optical converting means for receiving from the multiplexing means and converting the time-division-multiplexed signals to optical signals.

18. (CURRENTLY AMENDED) An optical transmission device having n channels, comprising:

optical-electrical converting means for converting time-division-multiplexed signals including k data representing transmission data for k channels in the n channels and $(n-k)$ error correction bits to n electrical signals;

separating means for separating the n electrical signals receiving from the optical-electrical converting means into a sequence of n data;

identification signal detecting means for detecting m data and the $(n-k)$ error correction bits in the sequence of the n data received from the separating means, each of the m data and the $(n-k)$ error correction bits having an identification signal; and

decoding means receiving the m data as well as the $(n-k)$ error correction bits from the

Docket No.: 614.1963D

Serial No. 10/615,978

identification signal detecting means and $(k-m)$ fixed data, for performing error correction decoding on the m data using the $(n-k)$ error correction bits.

19. (PREVIOUSLY PRESENTED) An optical transmission device comprising:
frame generating and SOH inserting means for adding an SOH (Section Over Head) to data for each of k channels such that all the k data can be aligned in phase by means of a frame synchronization byte within each SOH;

encoding means having n outputs and connected to the frame generating and SOH inserting means, for receiving the k data with the SOH, generating $(n-k)$ error correction bits for the k data without taking the frame synchronization bytes into account, adding a frame synchronization byte to each of the $(n-k)$ error correction bits and forming n data, each of the n data including its frame synchronization byte, by combining the $(n-k)$ error correction bits and the k data corresponding to the k channels; and

electrical-optical converting means for converting the n data from the encoding means into n optical signals having different wavelengths.

20. (PREVIOUSLY PRESENTED) An optical transmission device comprising:
optical-electrical converting means for converting n optical signals corresponding to n wavelengths into n electrical signals;

frame top detecting means for detecting a top of a frame for each of the n electrical signals converted by the optical-electrical converting means;

memory means for storing the n electrical signals converted by the optical-electrical converting means and outputting the stored n electrical signals such that the tops of the frames detected by the frame top detecting means are aligned with each other;

decoding means for performing an error correction decoding for k data contained in the n electrical signals converted by the optical-electrical converting means using $(n-k)$ error correction bits contained in said n electrical signals; and

SOH (Section Over Head) terminating means for receiving the k data from the decoding means and terminating an SOH for said every k data.

21. (CANCELED)